

**AMENDMENTS TO THE CLAIMS**

Please amend the claims as follows.

1. — 40. (Cancelled)

41. (New) A computer implemented method for performing garbage collection comprising:
- obtaining a collection set of objects in a computer system, wherein the collection set is associated with a collector interval of a collection cycle;
  - partitioning the collection set of objects into a plurality of sections, wherein a section of the plurality of sections is associated with a remembered set;
  - partitioning the section into a plurality of segments;
  - obtaining a first count-map for the section, wherein the first count-map is associated with a first thread, and wherein a first entry in the first count-map is associated with a first segment of the plurality of segments;
  - identifying a first plurality of references to objects in the first segment using the remembered set;
  - incrementing the first entry based on a size of the first plurality of references;
  - comparing the first entry with a popular-object threshold to generate a first comparison; and
  - evacuating a first object from the first segment based on the first comparison to reclaim memory of the computer system for reuse.
42. (New) The computer implemented method of claim 41, further comprising:
- obtaining a second count-map for the section, wherein the second count-map is associated with a second thread, and wherein a second entry in the second count-map is associated with the first segment;
  - identifying a second plurality of referenced to objects in the first segment using the remembered set;
  - incrementing the second entry based on a size of the second plurality of references;
  - incrementing the first entry based on the second entry before comparing the first entry with the popular-object threshold.

43. (New) The computer implemented method of claim 41, further comprising:
- obtaining a second count-map for the section, wherein the second count-map is associated with a second thread, and wherein a second entry in the second count-map is associated with a second segment of the plurality of segments;
  - identifying a second plurality of references to objects in the second segment using the remembered set;
  - incrementing the second entry based on a size of the second plurality of references;
  - comparing the second entry with the popular-object threshold to generate a second comparison; and
  - evacuating a second object from the second segment based on the second comparison to reclaim memory of the computer system for reuse.
44. (New) The computer implemented method of claim 41, wherein evacuating the first object comprises:
- adding a new section to the plurality of sections; and
  - placing the first object in the new section, wherein the new section is exclusively occupied by the first object.
45. (New) The computer implemented method of claim 43, wherein evacuating the second object comprises:
- adding a new section to the plurality of sections; and
  - placing the second object in the new section, wherein the new section is exclusively occupied by the second object.
46. (New) The computer implemented method of claim 41, wherein the popular-object threshold is an individual-map threshold.
47. (New) The computer implemented method of claim 42, wherein the popular-object threshold is a multiple-map threshold.
48. (New) The computer implemented method of claim 41, wherein at least one of the plurality of segments is smaller than a minimum object size.

49. (New) A computer readable medium storing instructions for performing garbage collection, the instructions comprising functionality to:

- obtain a collection set of objects in a computer system, wherein the collection set is associated with a collector interval of a collection cycle;
- partition the collection set of objects into a plurality of sections, wherein a section of the plurality of sections is associated with a remembered set;
- partition the section into a plurality of segments;
- obtain a first count-map for the section, wherein the first count-map is associated with a first thread, and wherein a first entry in the first count-map is associated with a first segment of the plurality of segments;
- identify a first plurality of references to objects in the first segment using the remembered set;
- increment the first entry based on a size of the first plurality of references;
- compare the first entry with a popular-object threshold to generate a first comparison;
- and
- evacuate a first object from the first segment based on the first comparison to reclaim memory of the computer system for reuse.

50. (New) The computer readable medium of claim 49, the instructions further comprising functionality to:

- obtain a second count-map for the section, wherein the second count-map is associated with a second thread, and wherein a second entry in the second count-map is associated with the first segment;
- identify a second plurality of referenced to objects in the first segment using the remembered set;
- increment the second entry based on a size of the second plurality of references;
- increment the first entry based on the second entry before comparing the first entry with the popular-object threshold.

51. (New) The computer readable medium of claim 49, the instructions further comprising functionality to:

- obtain a second count-map for the section, wherein the second count-map is associated with a second thread, and wherein a second entry in the second count-map is associated with a second segment of the plurality of segments;
- identify a second plurality of references to objects in the second segment using the remembered set;
- increment the second entry based on a size of the second plurality of references;
- compare the second entry with the popular-object threshold to generate a second comparison; and
- evacuate a second object from the second segment based on the second comparison to reclaim memory of the computer system for reuse.

52. (New) The computer readable medium of claim 49, wherein the instructions for evacuating the first object comprise functionality to:

- add a new section to the plurality of sections; and
- place the first object in the new section, wherein the new section is exclusively occupied by the first object.

53. (New) The computer readable medium of claim 51, wherein the instructions for evacuating the second object comprise functionality to:

- add a new section to the plurality of sections; and
- place the second object in the new section, wherein the new section is exclusively occupied by the second object.

54. (New) The computer readable medium of claim 49, wherein the popular-object threshold is an individual-map threshold.

55. (New) The computer readable medium of claim 49, wherein the popular-object threshold is an individual-map threshold.

56. (New) The computer readable medium of claim 49, wherein at least one of the plurality of segments is smaller than a minimum object size.

57. (New) An apparatus for performing garbage collection comprising:

- means for obtaining a collection set of objects in a computer system, wherein the collection set is associated with a collector interval of a collection cycle;
- means for partitioning the collection set of objects into a plurality of sections, wherein a section of the plurality of sections is associated with a remembered set;
- means for partitioning the section into a plurality of segments;
- means for obtaining a count-map for the section, wherein the count-map is associated with a thread, and wherein an entry in the count-map is associated with a segment of the plurality of segments;
- means for identifying a plurality of references to objects in the segment using the remembered set;
- means for incrementing the entry based on a size of the plurality of references;
- means for comparing the entry with a popular-object threshold to generate a comparison; and
- means for evacuating an object from the segment based on the comparison to reclaim memory of the computer system for reuse.